

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027002**Date Inspected:** 10-Jan-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG**Summary of Items Observed:**

At the start of the shift this Quality Assurance Lead Inspector (QAI) traveled to the SAS project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) Quality Control (QC) personnel. The observations and inspections were performed as noted below:

A). This Quality Assurance Lead Inspector (QALI) assigned the QA Inspectors to the following, but not limited to the work station(s) listed , to observe the welding and the QC inspection of the following:

Rick Bettencourt-OBG W12 (Observation of welding and QC inspection of lifting lug holes).

Art Peterson-Observation of the modifications of the existing bike path panels as per the CCO: 193 and ABF Submittal 2549 R1.

Doug Frey-OBG Field Splice E13/E14 (Observation of welding and QC inspection of the "D3" Deck), OBG E12 (Observation of repair welding and QC inspection on the lifting lug holes), OBG field splice W12/W13 (Observation of repair welding and QC inspection of bottom plate splice identified as "D2"), OBG field splice (Observation of repair welding and QC inspection of bottom plate splice identified as "D3") and QA/NDE verification.

Quality Assurance Lead Inspector (QALI) Summary

This QA Lead Inspector (QALI) observed the QA Inspector's Rick Bettencourt, and Douglas Frey monitor the

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

work performed by the QC inspectors at random intervals and also observed the QA Inspectors verify the welding parameters, the minimum preheat and the maximum interpass temperatures for compliance with the contract specifications. The QAI's utilized a Fluke 337 clamp meter to measure the electrical welding parameters, Tempil Heat Indicators and/or a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. At the conclusion of the shift, this QA Lead Inspector discussed and reviewed the work performed by the QAI's in regards to the various observations and the verifications of the WPS's, consumables, welding parameters, preheat and interpass temperatures. The QAI observations of the QC inspection and verification of the welding parameters performed on this date appeared to comply with the contract specifications and no issues was noted on this date. This QALI also verified the following in progress work:

FW Spencer/Pipe Welding of Utility Systems

This QALI observed the fit-up and CJP welding of the pipe 2.5" and 4" utility service system field splices. The welding was performed by FW Spencer personnel Damian LLanos, identification # 6645, utilizing the WPS identified as 1-12-1 and was utilized by the QC Inspector, Steve Jensen, and were noted as 87 amps. The work performed on this date was located at the west OBG W1 through W3 along grid line W2 between PP11 and PP19. The in process welding and the inspection performed by the QC inspector Mr. Jensen appeared to comply with the contract specifications.

OBG Field Splice W12/W13, SPCM

This QALI observed the Ultrasonic Testing (UT) of the transverse Complete Joint Penetration (CJP) weld of the deck plate field splice identified as WN: 12W-13W-A2. The testing was performed by the QC technician Jesse Cayabyab utilizing a G.E./Krautkramer USM 35X. Mr. Cayabyab also utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 as a reference during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .75 x .75 rectangular transducer to perform the shear wave testing during the testing for weld soundness. At the conclusion of the testing there were two (2) rejectable indications noted by the QC technician. At this time the welder proceeded to commence the excavations utilizing the manual Air Arc Cutting (AAC) method to remove the rejectable indication.

Later in the shift this QALI observed the QC inspector, Sal Merino, performing the Magnetic Particle Testing (MPT) of the excavated surface which ground to a bright metal. No rejectable indications were noted by the QC technician. At the conclusion of the testing the welder, Richard Garcia ID # 5892, commence the repair welding utilizing the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1004-Repair, Rev. 0. The WPS was also used by the AB/F Quality Control (QC) Inspector Salvador Merino as a reference during the monitoring and QC inspection of the repair welding. The electrodes and appeared to meet the requirements of the AWS Specification A5.20 and the AWS Classification E7018. The QAI also observed the QC inspector verify the welding parameters and were observed as 128 amps. The QC inspector also monitored the surface temperatures during the field welding and was observed and noted by the QAI and appeared to comply with the contract specifications minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The dimensions of the two (2) excavations were noted as follows: 1) Y=0 mm, d=11 mm, L=65 mm; and 2) 2320 mm, d=10 mm, L=80 mm.

This QALI also observed at this transverse field splice the repair welding of three (3) unacceptable discontinuities on the bottom plate field splice identified as WN: 12W-13W-D2, repair cycle # 1. The rejectable discontinuities

WELDING INSPECTION REPORT

(Continued Page 3 of 4)

were discovered during the Ultrasonic Testing (UT) performed by the QC technicians, Jesse Cayabyab and John Pagliero. The welding was performed by the welders Fred Kaddu, stamp # 2188, and Jeremy Dolman, Stamp # 5042 utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified ABF-WPS-D15-1001-Repair, Rev. 0 which was also utilized by the QC Inspector, Mr. Merino, to monitor the welding and to verify the DC welding parameters. The QC inspector verified the DC welding parameters and the average amperage was noted as 134 amps and the minimum preheat temperature 40 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius which appeared to comply with the contract documents. Prior to the welding the QAI verified the three (3) dimensions of the excavations and were noted and recorded as follows; 1) Y=4300 mm, d=25 mm, L=180 mm, 2) Y=5560 mm, d=20 mm, L=390 mm and 3) Y=5950, d=16 mm, L=120 mm.

Crossbeam (CB) 19 and OBG W14 (SPCM)

This QALI observed the grinding of linear indications at the deck plate of the Crossbeam 19 and the OBG W14. The indications were noted and marked for repair by the QC/MT technician, Sal Merino, during the Magnetic Particle Testing (MPT). The testing was performed at the areas where temporary attachments were welded and then removed at the conclusion of the field alignment of the crossbeam to the OBG W14. At the conclusion of the excavations by grinding Mr. Merino performed the MPT of the excavated areas and no rejectable indications were noted. At this time the welder, Rick Clayborn ID # 2773, proceeded with the welding operation utilizing the Weld Procedure Specification (WPS) identified as ABF-WPS-D15-1004-Repair, Rev. 0. The WPS was also used by the QC inspector, Sal Merino, as a reference to monitor the work and to perform the QC inspection during the welding task. The welding parameters were verified by the QC inspector and were noted as 130 amps. The minimum preheat of 160 degrees Celsius and the maximum interpass temperatures of 230 degrees Celsius appeared to comply with the contract specifications. The repair welding and the flush grinding was completed during this shift.

At the conclusion of the welding this QALI observed the Post Weld Heat Treatment of the repaired areas for approximately one (1) hour. The repair welding and QC inspection appeared comply with the contract specifications.

Also, this QALI performed QA/NDE verification of lifting lug holes at OBG W11 and OBG field splice 4E/5E. See attached TL-6027 and TL-6028 for additional information.

See QA daily Weld Inspection Reports (WIR) and NDE reports for additional information and details.

This QA Inspector continued the daily review of field inspection reports and update of the field document control tracking records regarding the Orthotropic Box Girders (OBG, Longitudinal and Transverse "A" Deck Stiffeners, Deck Access Holes and the Tower Shear plates).

Summary of Conversations:

There were general conversations with Quality Control Lead Inspector, Bonifacio Daquinag, Jr., at the start of the shift regarding the location of welding, inspection personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910, who represents the Office of Structural Materials for

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

your project.

Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer